

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Federal Aviation Administration's (FAA) oversight of repair stations that maintain and repair aircraft and aircraft components. In recent years, FAA's oversight of repair stations has become a matter of concern, in part because the work performed by repair stations has been identified as a factor in several aircraft accidents. For example, the National Transportation Safety Board determined that a fatigue fracture from corrosion pits that were not discovered or properly repaired by a repair station was the probable cause of a propeller loss on an Atlantic Southeast Airlines Embraer-120 in August 1995. The propeller loss occurred at 18,000 feet, and the plane crashed during an emergency landing, killing 8 and injuring 21 others on board.

Last year, at the request of the Ranking Minority Member of this Subcommittee and Senator Ron Wyden, we reported on FAA's oversight of repair stations.<sup>1</sup> During our review, we observed operations at repair stations in this country and overseas and reviewed the inspection files for nearly 500 repair stations at FAA regional or district offices. We also surveyed inspectors responsible for repair stations to obtain their views on how FAA's oversight could be improved. Our report discussed three main issues: (1) the practice of using individual inspectors in repair station inspections; (2) the condition of inspection documentation; and (3) current FAA actions to improve the inspection process.

- FAA was meeting its goal of inspecting every repair station at least once a year and that 84 percent of the inspectors believed that the overall compliance of repair stations was good or excellent. However, more than half of the inspectors said that there were areas of compliance that repair stations could improve, such as ensuring that their personnel receive training from all airlines for which they perform work and have current maintenance manuals. We also found that while FAA typically relies on individual inspectors, the use of teams of inspectors, particularly at large or complex repair stations, may be more effective at identifying problems and are more liable to uncover systemic and long-standing deficiencies.

<sup>1</sup>See Aviation Safety: FAA Oversight of Repair Stations Needs Improvement (GAO/RCED-98-21, Oct. 24, 1997).

- Because of insufficient documentation, we were unable to determine how well FAA followed up to ensure that the deficiencies found during the inspections were corrected. Thus, we were not able to assess how completely or quickly repair stations were bringing themselves into compliance. Because FAA does not tell its inspectors what documentation to keep, the agency's ability to identify and react to trends is hampered. FAA is spending more than \$30 million to develop a reporting system that, among other things, is designed to enable the agency to apply its inspection resources to address those areas that pose the greatest risk to aviation safety. As we have reported in the past, this goal will not be achieved without significant improvements in the completeness of inspection records.
- Since the May 1996 crash of a ValuJet DC-9 in the Florida Everglades, FAA has announced new initiatives to upgrade the oversight of repair stations. These initiatives were directed at clarifying and augmenting air carriers' oversight of repair stations, not at ways in which FAA's own inspection resources could be better utilized. However, FAA has several other efforts under way that would have a more direct bearing on its own inspection activities at repair stations. One effort would revise the regulations governing the operations at repair stations, and another would revise the regulations governing the qualifications of repair station personnel. However, the revision of the regulations began in 1989 and has been repeatedly delayed. The third effort is the addition of more FAA inspectors, which should mean that more resources can be devoted to inspecting repair stations. Finally, FAA has recently announced a major overhaul of its entire inspection process. This effort is scheduled to be implemented in the fall of 1998. It is designed to systematize the process and ensure consistency in inspections and in reporting the results of these inspections so as to allow more efficient targeting of inspection resources.

#### TEAM INSPECTIONS VS. INDIVIDUAL INSPECTIONS

FAA guidance prescribes an annual inspection to cover all aspects of a repair station's operations, including the currency of technical data, facilities, calibration of special tooling and equipment, and inspection procedures, as well as to ensure that the repair station is performing only the work that it has approval to do. Most FAA offices assign an individual inspector to conduct routine surveillance at a repair station, even one that is large and complex, rather than using a team of inspectors. Most inspectors are

responsible for oversight at more than one repair station. At the FAA offices we visited, we examined the workloads of 98 inspectors and found that, on average, they were responsible for 12 repair stations each, although their individual workloads varied from 1 to 42 facilities of varying size and complexity. The inspectors assigned responsibility for repair stations are also assigned oversight of other aviation activities such as air taxis, agricultural operators, helicopter operators, and training schools for pilots and mechanics.

FAA uses teams for more comprehensive reviews of a few repair stations through its National Aviation Safety Inspection Program or its Regional Aviation Safety Inspection Program.<sup>2</sup> These special, in-depth inspections are conducted at only a small portion of repair stations. In the past 4 years, an average of only 23 of these inspections have been conducted annually at repair stations (less than 1 percent of the repair stations performing work for air carriers).

From fiscal year 1993 through 1996, we found 16 repair stations that were inspected by a single inspector and were also inspected by a special team of inspectors during the same year. The teams found a total of 347 deficiencies, only 15 of which had been identified by individual inspectors. Many of the deficiencies the teams identified were systemic and apparently long-standing, such as inadequate training programs or poor quality control manuals. Such deficiencies were likely to have been present when the repair stations were inspected earlier by individual inspectors.

We believe that there are several reasons why team inspections identify a higher proportion of the deficiencies that may exist in the operation of large repair stations. First, many FAA inspectors responsible for conducting individual inspections said that, because they have many competing demands on their time, their inspections of repair stations may not be as thorough as they would like. Second, team inspections make use of checklists or other job aids to ensure that all points are covered. Although FAA's guidance requires inspectors to address all aspects of repair stations' operations during routine surveillance, it does not prescribe any checklist or other means for assuring that all items are covered. The lack of a standardized approach for routine surveillance increases the possibility that items will not be covered. Finally, inspectors believe team inspections help ensure that

<sup>2</sup>FAA determines which facilities should receive additional oversight through these comprehensive reviews, selecting them on the basis of previous inspection results or the size and complexity of operations.

their judgments are independent because most team members have no ongoing relationship with the repair station. By contrast, individual-inspector reviews are conducted by personnel who have a continuing regulatory responsibility for the facilities and, therefore, a continuing working relationship with the repair station operator.

A substantial number of the inspectors we surveyed supported the use of team inspections. We found that 71 percent of the inspectors responding favored team inspections using district office staff as a means to improve compliance, and 50 percent favored an increase in National or Regional Aviation Safety Inspection Program inspections staffed from other FAA offices. We also found that some district offices had already begun using locally based teams to perform routine surveillance of large and complex repair stations. Thus, in our October 1997 report, we recommended that FAA expand the use of locally based teams for repair station inspections, particularly for those repair stations that are large or complex.

#### FOLLOW-UP AND DOCUMENTATION OF INSPECTIONS

FAA's guidance is limited in specifying what documents pertaining to inspections and follow-up need to be maintained. We examined records of 172 instances in which FAA sent deficiency letters to domestic repair stations to determine if follow-up documentation was present. However, responses from the repair stations were not on file in about one-fourth of these instances, and FAA's assessments of the adequacy of the corrective actions taken by the repair stations were not on file in about three-fourths of the instances. We also examined inspection results reported in FAA's Program Tracking and Reporting Subsystem, a computerized reporting system, and found it to be less complete than individual files on repair stations.

Without better documentation, FAA cannot readily determine how quickly and thoroughly repair stations are complying with regulations. Just as important, FAA cannot identify trends on repair station performance in order to make informed decisions on how best to apply its inspection resources to those areas posing the greatest risk to aviation safety. FAA is spending more than \$30 million to develop a system called the Safety Performance Analysis System, whose intent is to help the agency identify safety-related risks and establish priorities for its inspections. It relies in part on the current reporting subsystem, which contains the results of safety inspections. However, this system will not be fully implemented until late 1999, and it will be of limited use if the documentation on

which it is based is inaccurate, incomplete, or outdated.

We also found that FAA's documentation of inspections and follow-up was better in its files for foreign repair stations than for domestic repair stations, perhaps in part because under agency regulations, foreign repair stations must renew their certification every 2 years. By comparison, domestic repair stations retain their certification indefinitely unless they surrender it or FAA suspends or revokes it. Foreign repair stations appear to be correcting their deficiencies quickly so that they qualify for certificate renewal. The 34 FAA inspectors that we interviewed who had conducted inspections of both foreign and domestic repair stations were unanimous in concluding that compliance occurred more quickly at foreign facilities. They attributed the quicker compliance to the renewal requirement and said that it allowed them to spend less time on follow-up, freeing them for other surveillance work. However, we were unable to confirm whether foreign repair stations achieve compliance more quickly than domestic repair stations do, because of the poor documentation in domestic repair station files.

To address these problems, we recommended that FAA specify what documentation should be maintained in its files to record complete inspection results and follow-up actions, and that FAA monitor the implementation of its strategy for improving the quality of data in its new management information system. FAA concurred with these recommendations and has reported actions underway to implement them.

#### FAA ACTIONS UNDER WAY TO IMPROVE REPAIR STATION OVERSIGHT

FAA has several efforts under way that may hold potential for improving its inspections of repair stations. Two efforts involve initiatives to change the regulations covering repair station operations and the certification requirements for mechanics and repairmen. FAA acknowledges that the existing regulations do not reflect many of the technological changes that have occurred in the aviation industry in recent years. The FAA inspectors we surveyed strongly supported a comprehensive update of repair station regulations as a way to improve repair stations' compliance. Of the inspectors we surveyed, 88 percent favored updating the regulations. This update, begun in 1989, has been repeatedly delayed and still remains in process. The most recent target--to have draft regulations for comment published in the Federal Register during the summer of 1997--was not met. Similarly, the update of the certification requirements for maintenance personnel has been suspended since 1994. Because of these long-standing delays,

completion of both updates may require additional attention on management's part to help keep both efforts on track. Our October 1997 report recommended that FAA expedite efforts to update regulations pertaining to repair stations and establish and meet schedules for completing the updates.

A third effort involves increasing and training FAA's inspection resources. Since fiscal year 1995, FAA has been in the process of adding more than 700 inspectors to its workforce who will, in part, oversee repair stations. Survey responses from current inspectors indicated that the success of this effort will depend partly on the qualifications of the new inspectors and on the training available to all of those in the inspector ranks. Specifically, 82 percent of the inspectors we surveyed said that they strongly or generally favored providing inspectors with maintenance and avionics training, including hands-on training as a way to improve repair stations' compliance with regulations.

Another effort is FAA's new Air Transportation Oversight System. This system is intended to respond to problems in FAA's oversight that have been pointed out in recent years by GAO, the Department of Transportation's Inspector General, FAA's 90 Day Safety Review, and others. The goal of this new system is to target surveillance to deal with risks identified through more systematic inspections. Phase I of the system is expected to be implemented in the fall. When fully implemented, this system will offer promise of significant improvements in the way FAA conducts and tracks all of its inspections, including those performed at repair stations.<sup>3</sup> However, in its initial phase, the system will affect the oversight of only the 10 largest air carriers and may not be fully applied to repair stations for several years. We will continue to monitor FAA's progress in improving the effectiveness of its oversight in this important area.

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Mr. Chairman, this concludes our statement. We would be pleased to respond to questions at this time.

<sup>3</sup>It is unclear how the results of these inspections will be integrated into the Safety Performance Analysis System currently under development.

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